

Strategies for Mastering Multiplication and Preteaching Math Vocabulary

By,
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About me...

- Enchanted Hills Elementary in the Perris Elementary School District
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Workshop Goals/Objectives

- We will learn strategies to help students memorize and conceptually understand multiplication facts through various math properties and motivation.
- We will learn the importance of preteaching math vocabulary through the use of songs.

1st Day of 3rd Grade

- Please check your number on your nametag. Are you odd or even? When we play war the odds will go against the evens.
- Packet
- Multiplication will be your best friend, boyfriend, or girlfriend, today. How should you treat multiplication? Discuss with your group or partner.

Multiplication Basics

- I start teaching multiplication facts on the first day of school.
- I orally test the students every day. The student brings me his/her plastic sleeve with a multiplication chart and sign-off sheet. I ask the facts in random order.
- If a student is not fast or does not convince me he/she knows the fact, I will not highlight it on paper. If a student gets all facts highlighted, they can fill in their hat on the Multiplication Wizard chart and I sign-off on their sheet.

Multiplication Basics

- This allows students to be on different facts and paces.
- Who wants to get their facts highlighted?
- I teach the facts in this order: 0, 1, 10, 11, 5, 2, 3, 4, 6, 7, 8, 9, and 12.
- I tell my students to go home and “harass” their parents, siblings, other family members, and friends to ask them multiplication facts.

Multiplication Basics

- Students should take their charts or flashcards everywhere! In the car, in front of the television, recess, stores, etc.
- It is up to the students to ask others to study with them!
- It is up to the teacher to “harass” the students! Ask them facts everywhere! In line going to recess or lunch, during transition times in the classroom, etc.

Multiplication Basics

- Students make their own flashcards on blank index cards. This gives them accountability and helps them realize the importance of mastering the facts.
- The first few weeks of multiplication instruction should be full of motivation!! Get the students excited about multiplication! Tell them there is nothing greater in the world and they need their hearts and brains to master multiplication!
- Nag, nag, and nag them!
- Now for the instruction!

Zero Property of Multiplication

- This property states that any factor multiplied by 0 equals 0.
- Continually use the vocabulary words factors and product during instruction.
- Have students repeat what you are saying during the teaching of this property!
- Get excited!

Identity Property of Multiplication

- The product of any number and 1 is that number.
- Reinforce this property.
- Ask a person sitting next to you the 0 and 1 facts.

Multiplying by 10

- 2nd day of 3rd grade
- Take the factor that is not 10 and add a 0 in ones place.
- Reinforce Commutative Property of Multiplication.
- Introduce the vocabulary word *multiple*.
- Ask a person sitting next to you the 10 facts. Write down some of the facts we have learned on your index cards.

Multiplying by 11

- Take the factor that is not 11 and “double it”, write the same factor in the ones and tens place for 11×1 through 11×9 .
- Reinforce the Commutative Property for 11×10 .
- 11×11 break apart one 11 and insert a 2 because there are 2 elevens as factors, have students move their hands apart and move in two fingers.
- 11×12 break apart the 12, put a 3 in between, have students count 1 then point to ones place, 2, then tens place, count 3.
- Introduce circles and dots game to start students' conceptual understanding of multiplication.

Rules of War

- After about two days of multiplication instruction introduce the students to the game of war.
- Please fill out your nametag with a war name that will intimidate others such as *Awesome Annie* or *Annihilator Annie*.
- Form two lines parallel to each other, the odds in one line and the evens in the other.

Rules of War continued

- The teacher holds up a card and the first person to say the answer gets the card, if it is a tie, another card is held up, if it is another tie, both students get a card, and they walk to the end of the lines.
- Reinforce good sportsmanship behavior and supporting your team.
- The students in the lines are not allowed to talk when it is not their turn, if a student talks their cards will be given to the other team.
- Tell them to get their "game faces" on and to have the "fire in their eyes."
- Let's play!

Multiplying by 5

- On the third day of instruction, the students will already know 5×1 , 5×10 , and 5×11 .
- Write these on whiteboard or chart paper to let students see how many products they know already.
- Helpful Hints: 5×2 is $5 + 5$, 5×12 is five more than 5×11 , 55.
- Use the other factors and products to find the products of the other multiplication facts.
- Reinforce vocabulary throughout the instruction.

Multiplying by 2

- The students will already know or been introduced to 2×1 , 2×5 , 2×10 , 2×11 , that's four out of twelve facts!
- Start asking 2×2 , 3×3 , 6×6 , 7×7 , 8×8 , 9×9 , 8×7 etc. in line, during transition times, and any other moment during the day!

Multiplying by 3

- The students will already know 3×1 , 3×2 , 3×5 , 3×10 , 3×11 .
- 3×4 is three less than 3×5 .
- Build upon the other factors and products.
- Speed will come with time, focus on accuracy.
- Motivate them, have friendly competition between students.
- Have students get "information" about the progress of other classes, build up their morale.
- Have your old students come during their recesses to show the students how fast they need to be and to "test" the facts.

Multiplying by 4, 6, 7, 8, 9, and 12

- Build upon prior knowledge every day
- Introduce all facts by second week of school.
- Keep up the motivation, have students encourage each other to study.
- If a student is not studying, tell the entire class and let them handle it!
- Let's play circles and dots.

Multiplication Mastery

- 100 problem 5-minute timed test every Friday.
- Students will start mastering in as little as 2 weeks.
- If a student has all facts highlighted on chart, 100 on timed test, and can tell me the products with speed and accuracy, they have mastered multiplication!
- Start teaching division to those students who have mastered multiplication, stress the inverse property.

- What do we do with students who do not study? Students with learning disabilities? Please discuss with your group and be ready to share your thoughts.

- How can you use these multiplication strategies in your classroom? If you are in 4th grade and above, how will you review basic multiplication concepts and facts? How will you motivate your students? Please discuss with your group and be ready to share your thoughts.

Integration of Songs

- My 3rd grade class starts singing every song on Day 2.
- The songs preteach important language arts and math vocabulary.
- Each student has a copy of songs in his/her homework binder.
- Use TPR with all songs.

Constant Review

- Constantly ask multiplication, division, and math concept questions throughout the day.
- After about two weeks the students will have memorized the songs and know math vocabulary that will not even be taught for months!
- I have a morning routine that reviews most concepts in language arts and math and is run completely by the students.

- Create math word lists with important vocabulary for entire year and say it whole class daily.
- Give students a copy for home.
- Students will have read these words at least 200 times before state testing, they will be able to read and identify these words on test.
- What other strategies can we use to help students learn important math vocabulary?